# Operation Manual

## Diamond cut-off saw DTS 901-V
## Diamond cut-off saw DTS 901-H

Make this operation manual accessible to your operation staff in order to ensure that the machine will always be utilised correctly and remains in easy to handle condition!

LISSMAC

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State: 2006/06

# Preface

This operation manual has been established to make it easier to become familiar with the machine and to utilise its intended application options.

This operation manual contains important information on how to operate the machine in a safe, appropriate and economic manner. Observation of present operation manual contributes to avoid dangers, repair costs and down times and to increase the reliability and lifetime of the machine.

This operation manual is subject to supplementation by existing national regulations for prevention of accidents and for environmental protection.

Present operation manual must always be at hand at site and place of operation.

It must be read thoroughly and be applied by each person charged with performing works using this machine, such as

- Operations including set-up routines, trouble-shooting during operation processes, elimination of wastes from machining operation, care, elimination of process materials
- Maintenance (service, inspection, repair) and/or
- Transport

Apart from the provisions and instructions specified in this operation manual and the regulations valid and in force in the land and at the place of operation for prevention of accident also the acknowledged technical rules about the performance safety and technical works must be observed.

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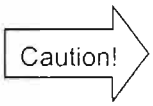
# 1. Basic safety information

## 1.1 Warnings and safety symbols used in this manual

Danger! Indicates that non-observance may cause heavy or even deadly injuries to the operator.



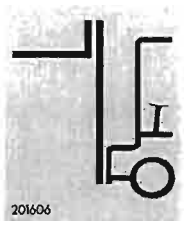

Indicates that non-observance may probably cause physical injuries.

Information! Indicates that non-observance may cause damages to the device or to other material or physical assets.

### 1.1.2 Explanation of the symbols mentioned on the machine

„Read the operating manual!"

„Wear the ear protection!"




„stacker loading points"

„Electrical danger"

„Limit stop for crane hook"

„Indication arrow on the saw hood"

### 1.1.3 Saw blades

- It has to be used only diamond saw blades.
- Cutting with toothed saw blades is prohibited.
- The saw blades require a statement of the sense of rotation.
- Saw blade diameter, -revolutions and –bore hole must match to the machine (see 2.3).
- Damaged saw blades has not to be used.

## 1.2 Principle of intended use

Danger!

1.2.1 The diamond cut-off saw is exclusively designed for the wet cutting of building bricks of mineral material. Cutting of wood, plastic, metal or other materials is prohibited!

The supplier/manufacturer does not assume any liabilities for any use not in accordance with the intended use.

Observation of present operation manual as well as of the inspection and servicing conditions under present manual are considered part of the intended use.

1.2.2 Only use and operate this machine in perfect technical condition as well as in accordance with regulations and be always aware of safety requirements and dangers and along the provisions as set forth in this operation manual! Always eliminate all malfunctions and obstructions apt to affect safety immediately (or let them have eliminated)!

1.2.3 The safety of this diamond cut-off saw is guaranteed only when using saw blades which are suitable for this machine.

## 1.3 Organisational measures

1.3.1 This operation manual must always be kept and stored ready at hand near the place of operation.

Danger!

1.3.2 Always observe any amendments to present operation manual as well as general legal and other regulations valid and in force for the prevention of accidents and environmental protection and make sure hat these will be instructed!

Any such obligations may also apply to the handling of hazardous materials or to personal safety and protection equipment that is subject to wear or to road traffic law regulations.

Danger!

1.3.3 Before starting to operate, personnel charged with performing any works on the machine must thoroughly have read this operation manual, particularly the chapter "safety information" and all warnings described therein, which will be too late to do during operation of the machine. This applies in particular for any personnel performing occasional routines on the machine only, such as set-ups, servicing etc.

1.3.4. At least check occasionally if the personal charged with performing any such works observes the provisions specified in this operation manual and performs works in full awareness of safety requirements and dangers.

Caution!

1.3.5 As far as necessary or required by prescriptions, always use personal safety equipment.

Danger!

1.3.6. Observe all safety and danger information indicated on the machine! (see 1.1.2)

Danger!

1.3.7 Do not remove safety information and warnings on the machine and keep them in always legible, complete condition. (see 1.1.2)

Danger! 1.3.8 In case of safety relevant modifications detected on the machine or if a changed operational behaviour is detected, please immediately notify the person / authority responsible thereof.

Danger! 1.3.9 Do not perform any modifications of or make extensions to the machine whatsoever without the supplier's previous consent!

Danger! 1.3.10 Only use original spare parts from the producer!

Danger! 1.3.11 Thoroughly observe servicing terms as prescribed or indicated in this operation manual. An annual expert inspection is obligatory. (see 7)!

1.3.12 Carefully clean the machine before inspection.

Danger! 1.3.13 Pull mains plug before performing any repair works or service outines.

## 1.4 Choice of personnel and qualification; basic obligations

Danger! 1.4.1 Only personnel having completed the 18th year of their life may operate this machine who have been made familiar with it and instructed accordingly.

Danger! 1.4.2 Unnecessary stay of unauthorised persons within the operation area of the machine is prohibited!

Danger! 1.4.3 Operation personnel must take care with all movements performed with the machine that no third persons may get endangered.

Danger! 1.4.4 Any works on the electrical equipment of the machine may be performed and effected by a specialist expert only or by instructed personnel under supervision and guidance of an expert electrician according to electronic regulations valid and in force at that time.

Danger! 1.4.5 Personnel under training, instruction or on completion of transfer training may only operate the machine or perform works or services n it if under constant supervision!

## 1.5 Safety information on particular stages of operation

### 1.5.1 Normal operation

1.5.1.1. Refrain from performing any operations critical in regard to safety!

Danger! 1.5.1.2 Take precautions that the machine will only be operated in safe and operative condition!

1.5.1.3 Check the machine for damages and defects visible from outside at least once per shift! Immediately inform the person / authority responsible of any changes or modifications that have been detected (including operative behaviour)! The case given, immediately stop, lock and secure the machine!

Danger! 1.5.1.4 In case of functional troubles immediately stop, lock and secure the machine!

Danger! 1.5.1.5 The diamond cut-off saw has exclusively been designed for the wet cutting of bricks. Cutting of wood or metal prohibited!

Danger! 1.5.1.6 It is interdicted to connect the machine to the mains supply without residual current operated device (FI) fitted in the supply cable.

Danger! 1.5.1.7 Before starting any cutting operations, daily check machine for:

- Condition of the diamond saw blade (cracked saw blades must be replaced – the case given, be checked by a specialist)
- Operative condition of the protective devices
- Sufficient cooling water supply – dry cuts prohibited!

Danger! 1.5.1.8 Do not tilt the saw blade.

Danger! 1.5.1.9 Mains plug must not be pulled if machine is under power supply load.

Information! 1.5.1.10 Take water pump off the tub when there is danger of freezing (do not switch on pumps that are already frozen – they must be thawed out slowly).

1.5.1.11 Under no circumstances it is allowed to touch the running saw blade.

1.5.2 Special works to be performed with the machine under normal operation, service routines and trouble-shooting during operation; elimination

Caution!

1.5.2.1 Thoroughly observe adjustment, maintenance and inspection routines at the terms scheduled including information regarding exchange of parts/ equipment parts! These works may be performed by specialist experts only.

Caution!

1.5.2.2 Always inform operators before starting to perform special works and servicing routines on the machine! Name a supervisor!

Danger!

1.5.2.3 If the machine is completely off circuit when performing servicing and repair works, make sure that it is protected against unintentional restart, too (remove the current conduction).

Information

1.5.2.4 Before cleaning the machine with water or with some other cleaning agents always close or cover all machine openings and apertures using a scotch tape or other means, into which no water/steam/cleaning agent may penetrate due to safety or functional reasons. Electric motor, switch and plug connections are particularly endangered. Cleaning by means of a water jet prohibited.

Information 1.5.2.5 Completely remove covers / scotch taped covers after cleaning!

Danger! 1.5.2.6 Tighten screw connections loosened for performing servicing and repair works.

Danger!

1.5.2.7 In case disassembly of safety devices becomes necessary when performing set-up, maintenance or repair works, said safety devices must be re-assembled immediately after and checked accordingly.

1.5.2.8 Take care that process materials and exchange parts will be eliminated in a manner that is friendly to the environment!

## 1.6. Information about special kind of dangers

1.6.1 Electric energy

Danger! 1.6.1.1 Use original fuses apt for the prescribed current intensity rate only! Switch off machine immediately in case troubles with the electric power supply to the machine occur!

Danger! 1.6.1.2 Only perform maintenance and repair works if the machine is off circuit.

Danger! 1.6.1.4 The electric equipment of the machine must be controlled / inspected regularly. Any defects such as loose connections or damaged cables respectively must be eliminated immediately.

1.6.2 Dust

1.6.2.1 During the separation of the mineral material you produce a dust which is breathable and can enter in the lung. Therefore you have to work always with a water sprinkling.

1.6.2.2 When you operate the machine in narrow rooms, always observe relevant national rules.

1.6.3 Noise value (see 2.4)

## 1.7 Transport

Danger! 1.7.1 Use a four ring suspension gear of sufficient carrying force when dislocating the machine.

Danger! 1.7.2 Determine an expert to give the appropriate handling instructions for the lifting procedure!

Danger! 1.7.3 Lift machine according to the instructions as provided in the operation manual (stop points for load carrying devices etc.) by means of the lifting gear in a workmanlike manner!

Danger! 1.7.4 Use an appropriate transport vehicle with sufficient carrying force only.

Danger! 1.7.5 Lock and secure the load in a reliable manner. Use appropriate stop points (pos. 12 and 14)!

Danger! 1.7.6 Consider the transport instructions (see 4)! Disconnect power supply even in case of minor dislocation of the machine! Connect machine to the mains properly again before restarting of machine!

Danger! 1.7.7 Proceed as prescribed in the operation manual when restarting the machine!

# 2. Description of machine

## 2.1 List of components

Pos. 1 – main switch

Pos. 2 – switch box

Pos. 3 – emergency switch

Pos. 4 – saw blade hood

Pos. 5 – hexagon nut for saw hood fixing

Pos. 6 – motor/gear

Pos. 7 – clamping lever for cutting height adjustment

Pos. 8 – connector plug

Pos. 9 – stand

Pos. 10 – locking of saw table

Pos. 11 – saw table

Pos. 12 – limit stops

Pos. 13 – water tub

Pos. 14 – fork lift bars

Pos. 15 – parking brake

Pos. 16 – clamping lever for feed unit (only DTS 901 V)

Pos. 17 – feed crank (only DTS 901 V)

Pos. 18 – locking for saw arm

## 2.2 Protection devices

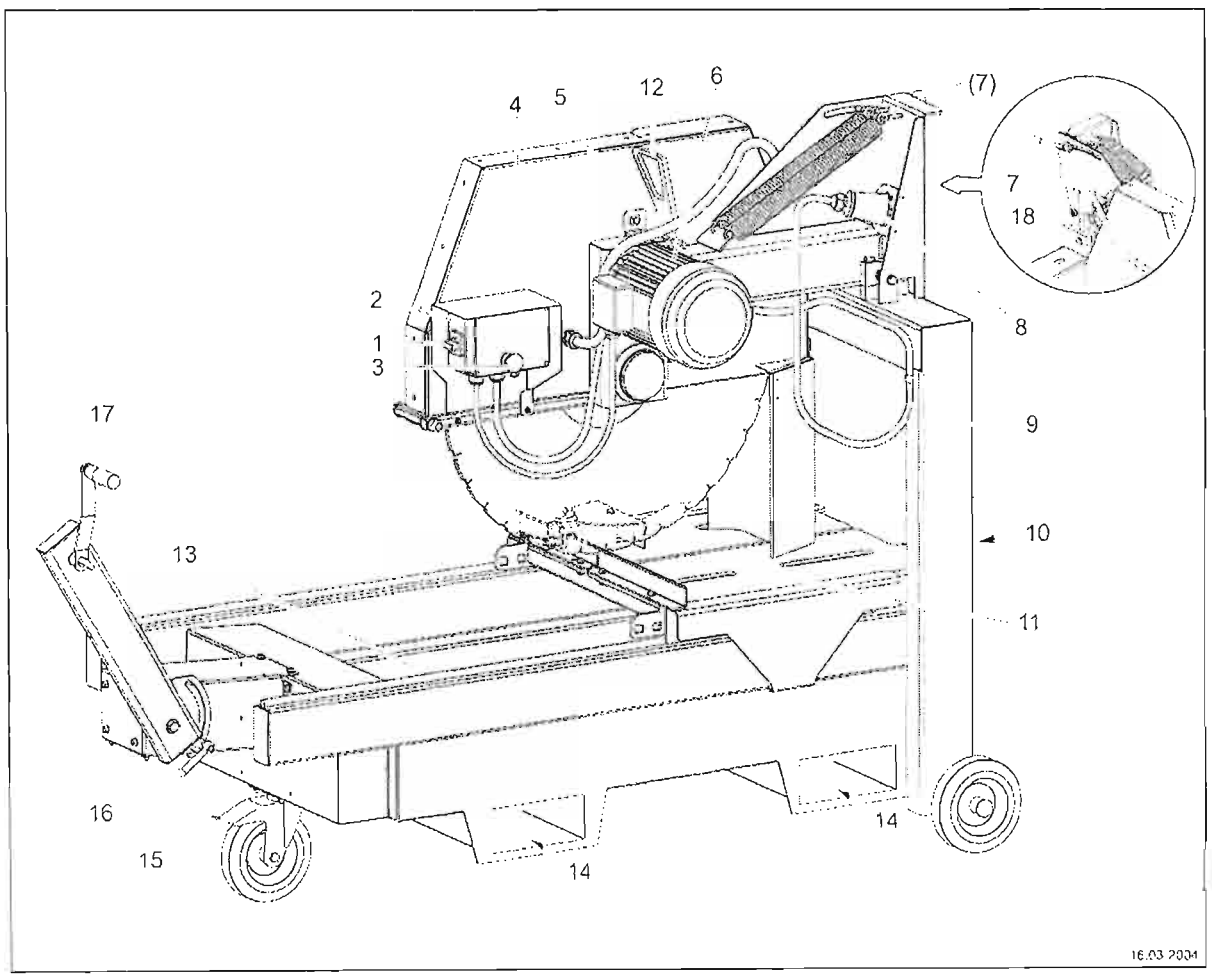
Pos. 4 – saw blade hood

Pos. 3 – emergency switch

## 2.3 Technical data

| | DTS 901-H | DTS 901-V |
|---|---|---|
| Motor output | 7.5 KW/400V | 7.5 KW/400V |
| Current consumption | 16.6 A | 16.6 A |
| System of protection | IP 54 | IP 54 |
| Revolutions of saw blade shaft | 910 r.p.m | 910 r.p.m |
| Saw blade diameter | 900 mm | 900 mm |
| Saw blade fixer/securer | 60 mm | 60 mm |
| Cut depth | 370 mm | 370 mm |
| Cut length | 660 mm | 660 mm |
| Table width | 745 mm | 745 mm |
| Height | 1500 mm | 1500 mm |
| Width | 1030 mm | 1030 mm |
| Net weight | 310 kg | 330 kg |
| Max. operation weight | 340 kg | 370 kg |
| Length in transport position | 1800 mm | 1920 mm |
| Feed of table | by hand | by crank |
| Max. dimensions of the material which can be cut | | |
| L | 660 | 660 |
| W | 660 | 600 |
| H | 370 | 370 |

Technical changes reserved!



### 2.4 Noise emission values

The measurements were carried out in corresponding to the norms EN ISO 3744, EN ISO 11201 and EN 12418. Therefore, a not noise reduced standard saw blade, type KS-4 Ø 900 mm, was used.

| | Without loading<br>With highest revolutions | Aerated concrete<br>cutting depth<br>9,5 cm | Sand lime stone<br>cutting depth<br>9,5 cm | Vertically perforated brick<br>cutting depth 9,5 |
|---|---|---|---|---|
| Permanent intensity level at the working place LpA | 84 dB (A) | 87 dB (A) | 94 dB (A) | 91 dB (A) |
| Sound power level LwA [in dB] | 99 dB (A) | 100 dB (A) | 107 dB (A) | 106 dB (A) |

## 3. Mounting and first operation preparation

### 3.1 Mounting tools with tool holder

- Fork wrench size 13 (for saw blade exchange)
- Fork wrench size 46 (for saw blade exchange)

### 3.2 Mounting

- Place the saw on a clean even ground
- Push parking brake (Pos. 15)
- At the working place has to be sufficient light

### 3.3 Fitting of the saw blade (or control of mounting)

- Tighten the height adjustment (Pos. 7).
- Water hose coupling is open.
- Loosen hexagon bolt (Pos. 5) (SW 13).
- Tilt saw blade hood ahead on the table.
- Remove the flange nut (left handed thread) and the pressure disk.

**ATTENTION! The following must be observed when fitting the saw blade.**

Information!

- All fixing surfaces must be clean.
- Arrows indicating the sense of rotation on the saw blade and on the hood must conform.
- Use diamond saw blades provided by the manufacturer only.

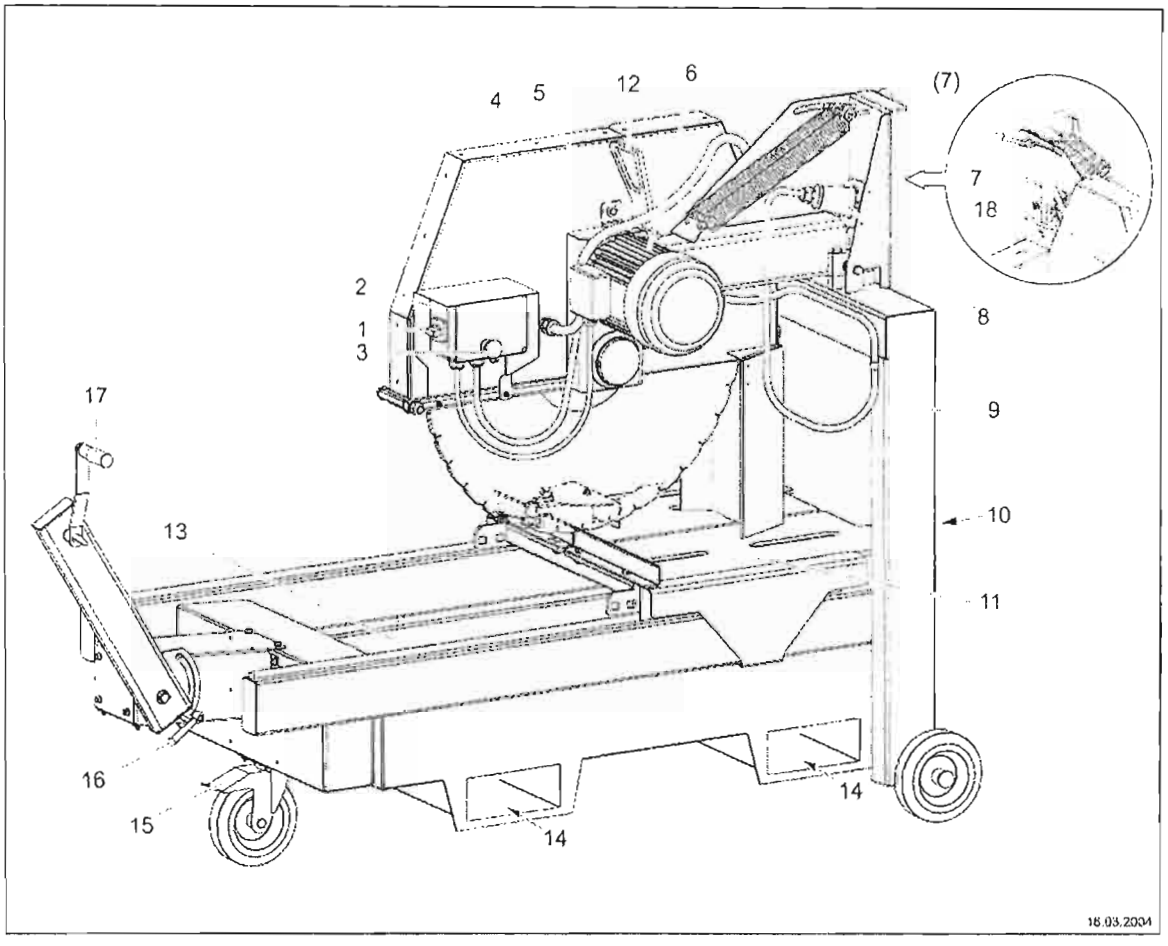
- Mount pressure disk and flange nut (fork wrench SW 46).
- Tilt saw hood back.
- Fix saw hood with the hexagon bolt (Pos. 5).
- Close the water hose coupling.

### 3.4 Preparing for cut-off operation

- Fill water in the tub until the pump stands under water.
- Open water tap.
- Plug the mains supply cable (400V, 32A) into the socket (Pos. 8).
- Check the protection equipment (see 2.2).

## 3.5 Test sense of rotation of the saw blade

- Shortly position star-delta switch (Pos. 1) to "star".
- Verify sense of rotation of saw blade.
  * Sense of rotation seem from left side in clockwise direction (indication arrow on the saw hood).




## 3.6 Change of sense of rotation

- Turn mains switch (Pos. 1) off.
- Remove supply cable from plug (Pos. 8).
- Turn phases of plug (Pos. 8) using a screw driver
  * Press white disk inwards and turn it.

### 3.7 Trial run

- The position of the user during the operation is by the crank handle (Pos. 17) or in front of the pushing handle (DTS 901-H).

- Place a brick on the cut-off saw.

**Danger! Avoid any touching with the running saw blade!**

- Position brick to limit stop.
- Position switch (Pos. 1) to "star".
- Wait till motor has achieved a constant r.p.m. (constant noise).
- Turn switch (Pos. 1) to position „triangle".

ATTENTION! **Is there enough cooling water for the saw blade?**

Caution!

- Dry cuts prohibited.
- An insufficient quantity of cooling water results in premature wear or defect of the saw blade.
- Wear tight clothes

- Start advance movement via crank handle (Pos. 17) (or sliding handle DTS 901-H).
  * First cut at low advance speed.
  * Adjust advance speed to advance force.

## 4. Transport

### 4.1 Transport preparations

- Disconnect saw from the supply cable.
- Remove water from the tub.
- Height adjustment (Pos. 7) is fixed.
- Position saw table back wall and bolt it (Pos. 10).
- Loosen clamping lever (Pos. 16).
- Turn feed unit to the back.
- Draw the clamping lever (Pos. 16) tight.

### 4.2 Dislocation via building crane

**Caution! The locking for the saw arm (Pos. 18) must be in vertical position!**

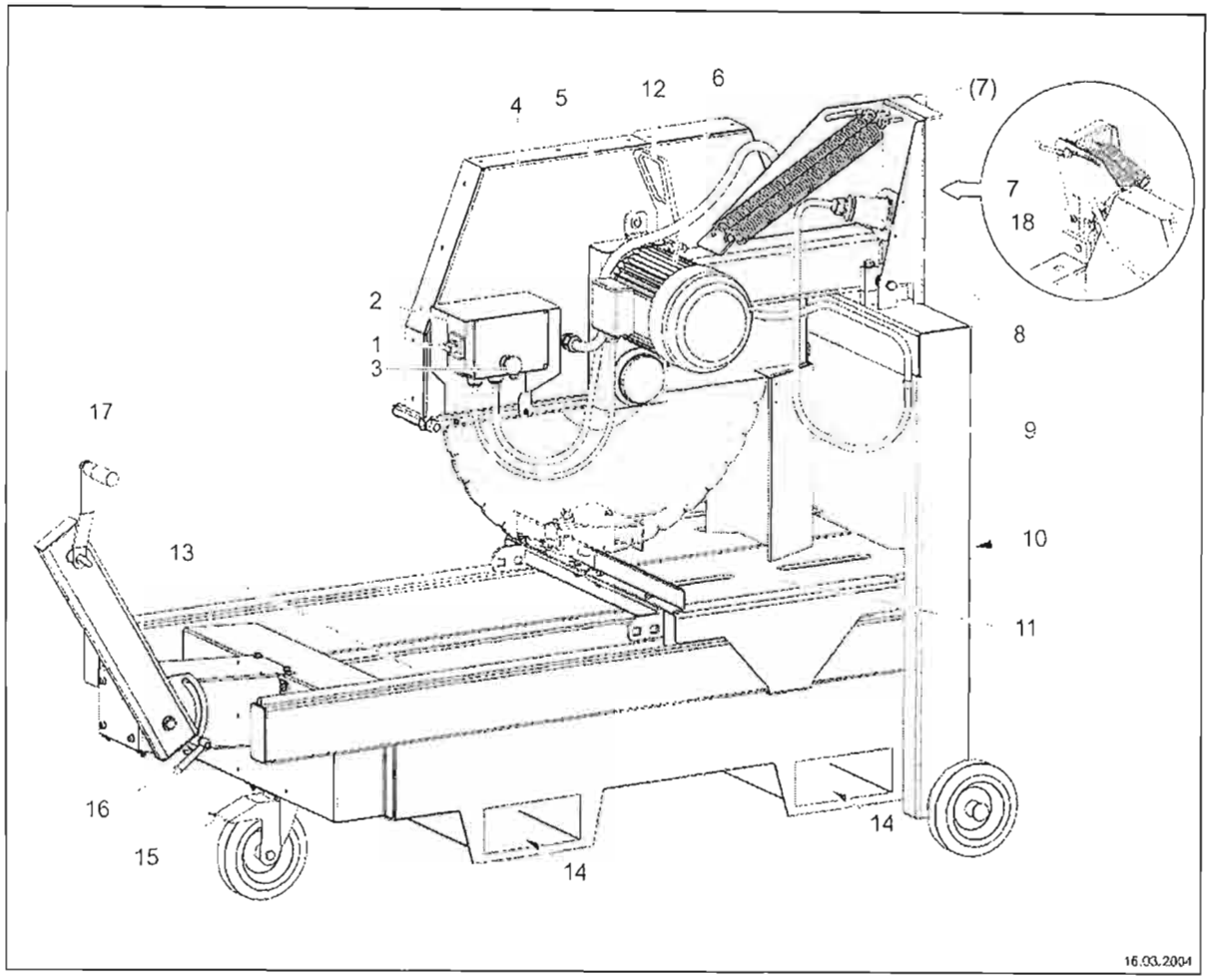
- Hang up the three suspenion gear with sufficient carrying force into the eyelets provided for this purpose at the limit stops (Pos. 12).
- Always watch the saw when dislocating.

### 4.3 Transport on a lorry

- Arrest the wheels with the brakes (Pos. 15).
- Fasten saw additionally at the limit stops (Pos. 12) by means of tension belts.

### 4.4 Transport by a fork lift

- Put saw off at the fork lift bars (Pos. 14).




# 5. Operation

## 5.1 Placing of the saw

- Place the saw on clean and solid, stable ground.
- All three wheels must have contact to the ground.
- Push the brakes (Pos. 16).

## 5.2 Preparing of cut-off operations (see 3.4)

## 5.3 Check sense of rotation of saw blade (see 3.5)

## 5.4 Change sense of rotation (see 3.6)

## 5.5 Cutting (see 3.7)

## 5.6 Cutting quality of the saw blade

Should the saw blade loose ist cutting quality after a longer operation term, some cuts into lime clay bricks or some similar material will „regrind" the blade.

### 5.7 Change of cooling water

Strongly polluted water reduces the lifetime of pump and saw blade.

- When used frequently, replace water daily and remove the sawing mud, too.
- Clean the suction sieve of the pump each time when replacing the water.

### 5.8 Height adjustment

Height adjustment is needed:

- to cut bricks with a height of more than 370 mm by means of reversing cuts.

Handling of height adjustment.

**Attention! Saw arm locking (Pos. 18) must be in horizontal position!**

- Motor ist switched off.
- Loosen the clamping lever (Pos. 7).
- Adjust saw head to the desired height.
- Tighten the clamping lever (Pos. 7).

### 5.9 Replacement of saw blade (see 3.3)

## 6. Dismounting

- Turn mains switch (Pos. 1) back.
- Remove connection cable.
- In danger of frost you should take the water pump out of the water and let the water drain off.
  **ATTENTION! Pumps that are already frozen must be thawed out before starting them.**
- Transport (see 4.)

## 7. Maintenance

### 7.1. Maintenance works

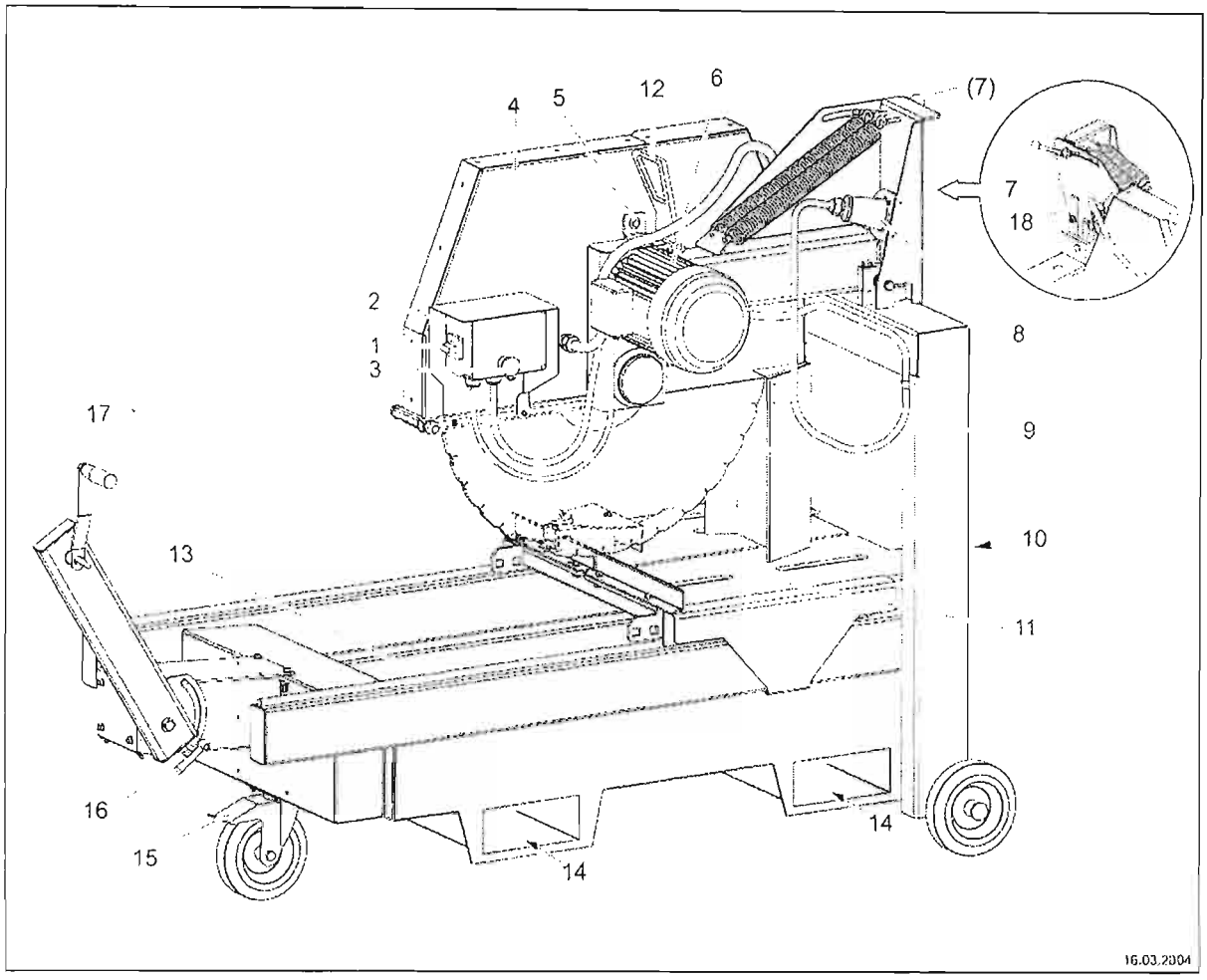
- Thoroughly clean the saw once a week (in off circuit condition).
- Daily check the saw blade

### 7.2 Following operations has to be made in off cicuit condition

| | |
|---|---|
| • Repair at the motor | my only be repaired by a qualified electrician |
| • Repair of switches | may only be repaired by a qualified electrician |
| • Repair on cables | may only be repaired by a qualified electrician |
| • Saw blade change | |
| • Repair at the saw blade cover | |

### 7.3 Checking of the electric according to UVV (only valid in Germany)

BGVA2 (VBG4)




## 8. Malfunctions

| Trouble | Possible reason | Remedy |
|---|---|---|
| Motor does not work | • Supply cable defect | • New supply cable |
| | • Motor defect<br>• Switch defect | • May be remedied by an expert electrician only |
| Wrong sense of rotation of saw blade | • Motor poled wrong | • Change poles of phase shift plug (Pos. 8) (see 3.6) |
| Motor stops while cutting operation, can be re-started after a short break time | • Advance to high | • Cut with lower advance |
| | • Saw blade blunt | • Regrind saw blade by cutting 10-15 times into lime clay brick |
| | • Saw blade worn (coating > 2 mm) | • Replace the saw blade |
| No water at the saw blade | • Pump does not work | • Must be checked by an expert electrician |
| | • Tubing system clogged | • Clean the tubing system |

## 10. Guarantee

The guarantee time is 12 months. The following wearing parts you will get only in guarantee, when the wearing is not due to working conditions.

Wearing parts are parts, which will be worn out in working conditions due to intended use of a machine. The time of wearing is not defineable in an uniform way, it depends on their application intensity. The wearing parts for each specific machine has to be attended, adjusted and if necessary exchanged in accordance to the user's manual of the producer.

For wearing due to working conditions there is no guarantee.

- Advance- and driving elements as toothed racks, toothed wheels, pinions. spindles, spindle nuts, spindle bearings, ropes, chains, chain wheels, belts
- Washers, cables, hoses, collars, plugs, clutches and switches for pneumatic, hydraulic, water, elektricity, fuel
- guidance elements as guiding joints, guiding bushes, guiding rails, rolls, bearing, antislipping devices
- flushing head seal
- sliding- and rolling bearing, which are not running in an oil-bath
- rotary shaft seal and sealing elements
- friction- and overload clutches, brake gears
- graphite brush, collectors
- potentiometer control and manual control elements
- fuses and lamps
- process materials
- fixing materials as plugs, anchor and screws
- bowden wires
- lamellars
- membranes
- spark plugs, glow plugs
- parts of reversing starter as start by rope, start by handle, start by roll, start by spring
- sealing brush, packing rubber, splash guard rags
- filter all types
- driving-, deflection roller and roller lining
- protection elements for rope lays
- running- and driving wheels
- water pumps
- transport roller for cutting material
- drilling-, parting-off- and cutting tools
- conveyor belt
- rubber stripes
- needled felt protection
- energy accumulation

*LISSMAC Maschinenbau u. Diamantwerkzeuge GmbH*

# EEC Declaration of conformity for

## Diamond cut-off saw DTS 901-V
## DTS 901-H

**Producer**

LISSMAC Maschinenbau u. Diamantwerkzeuge GmbH
Lanzstraße 4

D-88410 Bad Wurzach

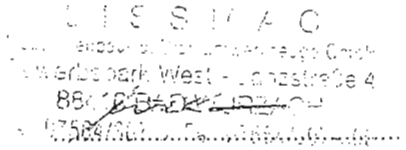
**Description of machine**

- Circular brick saw
- Cut depth = 370 mm
V= Advance by crank
H= Advance by hand

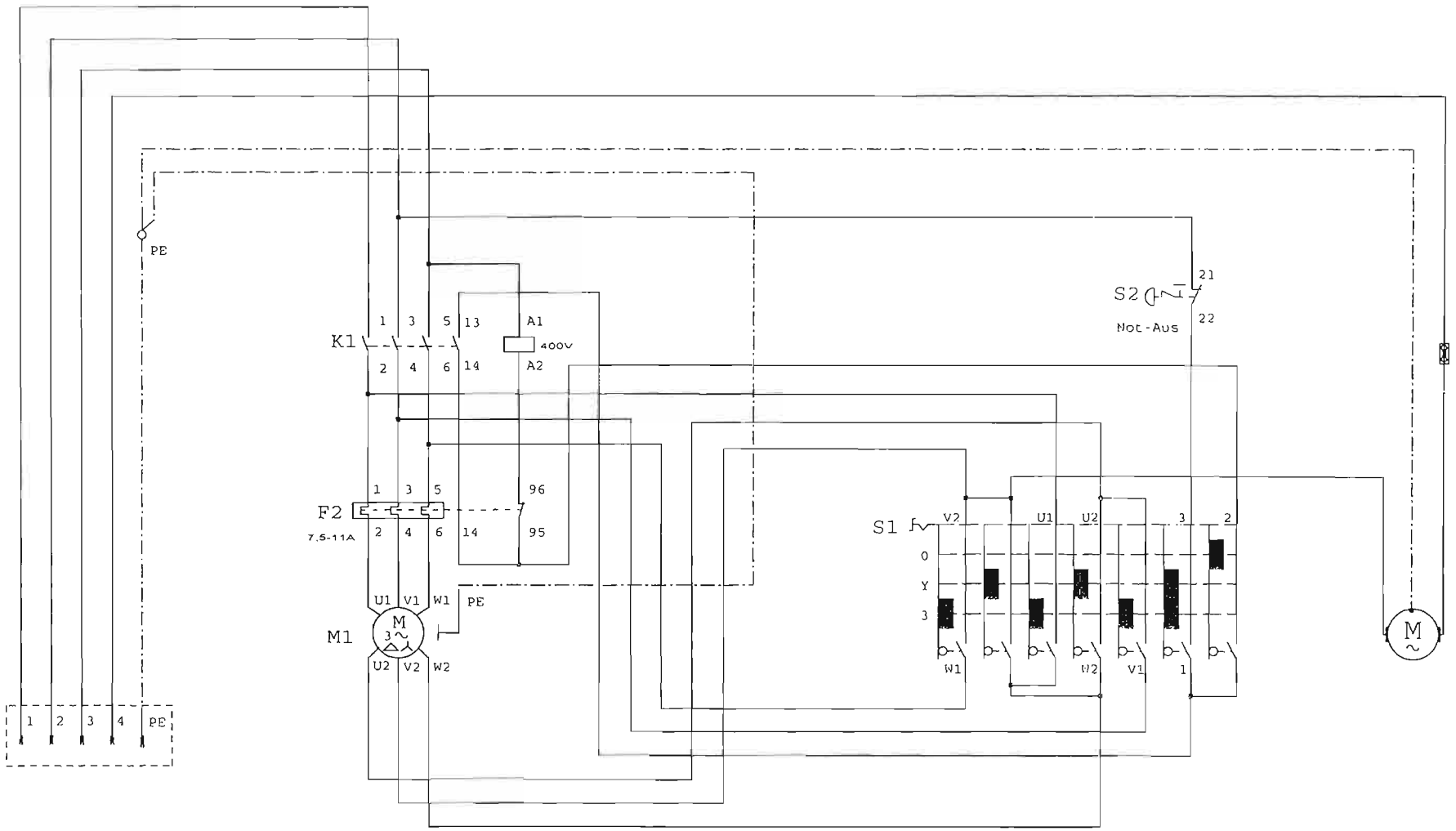
**Relevant EC-directives**

EC Machine Directive (Council Directive 98/37/EEC)
Low Voltage Directive (LVD), (Council Directive 73/23 EEC) ,
EC Electromagnetic Compatibility Directive (Council Directives 89/336/EEC, EN 12100, EN 294, EN 349, EN 12418, EN 50081-1, EN 55014, EN 50082-1, EN 60204, EN 60204-1, EN 418, EN 953)
Noise Directives 2000/14/EEC

**Authorized person Legally responsible:**



Josef Weiland
Technical Director

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| | | | | Bearb. | Stehmer | DTS 901 | Maschinenbau & Diamantwerkzeuge Lanzstraße 4 88410 Bad Wurzach Tel. +49 7564307-0 | | + |
| | | | | Art.Nr | 403362 | | | | Blatt 1 |
| Zustand | Änderung | Datum | Name | Norm | | Urspr. | Ers f | Ers d. | von 1 Bl. |

# ERSATZTEIL-LISTE

## Spare Parts List
## Liste des Pièces détachées
## Lista di parti di ricambio

# Diamanttrennsäge

# DTS 901-V
# DTS 901-H

LISSMAC

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*Stand 2006/09*

Ersatzteilliste DTS 901

| Pos. Nr. | Art.-Nr. | Deutsch | English | Francais | Italiano |
|---|---|---|---|---|---|
| 1 | 690879 | Gestell | Mount | Bâti | Telaio |
| 2 | 690887 | Sägearm | Saw arm | Bras de scie | Braccio della sega |
| 3 | 691194 | Getriebekasten | Gear case | Boîtier d'engrenages | Scatola ingranaggi |
| 4 | 690880 | Haube kpl. | Hood cplt. | Capot cpl. | Carter compl. |
| 5 | 680660 | Spritzlappen | Mist protection | Protection de brouillard | Paranebbia d'olio |
| 6 | 607524 | Pumpenkorb | Pump strainer | Panier de pompe | Cestello della pompa |
| 7 | 613071 | Sägeblattflansch | Saw blade flange | Bride de lame de scie | Flangia per sega |
| 8 | 607490 | Exzenter | Eccentric | Excentrique | Eccentrico |
| 9 | 610082 | Deckel | Cover | Couvercle | Coperchio |
| 10 | 206168 | Spritzschutz | Splash guard | Protection contre projections | Paraspruzzi |
| 11 | 607510 | Verstärkungsblech | Reinforcement plate | Tôle de renforcement | Lamiera di rinforzo |
| 12 | 207240 | Wasserwanne | Water pan | Cuve à eau | Vasca dell'acqua |
| 13 | 607312 | Lagerbock | Pillow block | Support de palier | Supporto di cuscinetto |
| 14 | 607511 | Verstärkung | Reinforcement | Renforcement | Rinforzo |
| 15 | 613070 | Sägeblattwelle | Saw blade shaft | Arbre lame de scie | Albero della lama |
| 16 | 610099 | Wannenriegel | Pan locking bar | Verrou du bac | Blocco vasca |
| 17 | 607519 | Steckersicherung | Plug fuse | Fusible enfichable | Fusibile connettore |
| 18 | 607526 | Schalterhalter | Switch holder | Appui pour l'interrupteur | Portainterruttore |
| 19 | 280003 | Rad-Vollgummi | Wheel, solid rubber | Roue en caoutchouc plein | Ruota in gomma piena |
| 20 | 300081 | Unterlagscheibe | Washer - steel | Disque d'acier | Rondella in acciaio |
| 21 | 203457 | Rad-Vollgummi | Wheel, solid rubber | Roue en caoutchouc plein | Ruota in gomma piena |
| 22 | 403815 | E-Motor 7,5kW | Electro motor 7.5 kW | Moteur électrique 7,5 kW | Motore elettrico da 7,5 kW |
| 23 | 203663 | Bundbuchse | Flange sleeve | Douille à collet | Bussola flangiata |
| 24 | | Sägeblatt 900 | Saw blade | Lame de scie | Lama della sega |
| 25 | 206195 | Gleitstopfen | Sliding plug | Tampon coulissant | Tappo scorrevole |
| 26 | 690061 | Wasserstopfen | Stopper (water) | Bouchon | Tappo |
| 27 | 610222 | Wasserhahn | Water tap | Robinet d'eau | Rubinetto dell'acqua |
| 28 | 200237 | Bügelgriff D=6,5 | Bow grip, plastic, black | Poignée en forme d'étrier plastique noire | Manopola ad asta in plastica nera |
| 29 | 300248 | Unterlagscheibe | Washer – steel | Disque d'acier | Rondella in acciaio |
| 30 | 300833 | Sicherungsmutter | Lock nut | Contre-écrou | Dado autobloccante |
| 31 | 280183 | Starlockkappe | Pan locking bar | Cache Starlock | Calotta Starlock |
| 32 | 280041 | Klappsplint | Plug fuse | Goupille articulée | Copiglia ribaltabile |

| Pos. Nr. | Art.-Nr. | Deutsch | English | Francais | Italiano |
|---|---|---|---|---|---|
| 33 | 200324 | Kette C-Glied | C-link chain | C - chaînon | Catena, elemento a C |
| 34 | 300172 | Sechskantschraube | Hexagonal screw | Vis hexagonal | Vite a testa esagonale |
| 35 | 202653 | Schlüsselring | Key ring | Anneau clé | Anello a chiave |
| 36 | 403226 | Tauchpumpe 230V | Submersible pump 230V | Pompe immersible 230V | Pompa sommersa 230V |
| 37 | 200195 | PVC-Schlauch 13X3,5 | PVC hose | Tuyau PVC | Tubo flessibile in PVC |
| 38 | 300054 | Ein-Ohr-Klemme | Single-ear clamp | Pince a une oreille | Blocco monoaurale |
| 39 | 206977 | Y-Einschraubtülle | Y screw-in bushing | Douille vissée Y | Boccola ad avvitamento a Y |
| 40 | 280108 | Geka-Schlauchstück | Geka hose piece | Raccord GEKA pour pièce de tuyau | Tubo flessibile attacco Geka |
| 41 | 280104 | Geka-Gewindestück | Geka coupling | Raccord geka | Attacco geka |
| 42 | 403169 | Gegenmutter | Check nut | Contre-écrou | Dado di bloccaggio |
| 43 | 403167 | Kabelverschraubung | Cable fitting | Vis de câble | Avvitamento cavi |
| 44 | 280165 | PVC-Schlauch 10X2 | PVC hose | Tuyau PVC | Tubo flessibile in PVC |
| 45 | 200578 | Einmaulschlüssel SW 46 | Single-ended spanner | Clé à fourche simple | Chiave semplice con apertura |
| 46 | 280199 | Einmaulschlüssel SW 13 | Single-ended spanner | Clé à fourche simple | Chiave semplice con apertura |
| 47 | 201824 | Zugfeder | Tension spring | Ressort de traction | Molla di trazione |
| 48 | 300652 | Ringschraube | Eye bolt | Anneau de levage | Vite ad anello |
| 49 | 300291 | Scheibe | Washer - steel | Disque acier | Rondella in acciaio |
| 50 | 300273 | Sechskantmutter | Hexagon nut | Ecrou hexagonal | Dado esagonale |
| 51 | 403263 | Schalter-Gehäuse | Switch cover | Boîtier d'interrupteur | Alloggiamento dell'interruttore |
| 51.1 | 403166 | Kabelverschraubung | Cable fitting | Vis de câble | Avvitamento cavi |
| 51.2 | 403168 | Gegenmutter | Check nut | Contre-écrou | Dado di bloccaggio |
| 51.3 | 403055 | Kabelverschraubung | Cable fitting | Vis de câble | Avvitamento cavi |
| 51.4 | 403062 | Gegenmutter | Check nut | Contre-écrou | Dado di bloccaggio |
| 51.5 | 400060 | Stecker-Phasenwender 32-A | Phase inverter plug | Connecteur inversion | Connettore inversione di fase |
| 51.6 | 403243 | Leitung-Flex-Gummi | Line, flexible | Conduite flexible | Linea flessibile |
| 51.7 | 403244 | Leitung-Flex 7X1,5 | Line, flexible | Conduite flexible | Linea flessibile |
| 51.8 | 403297 | Schütz | Contactor | Contacteur | Contattore |
| 51.9 | 403298 | Relais-Thermo | Thermal relay | Relais électrothermique | Relè termico |
| 51.10 | 400610 | Not-Aus kpl | Mushroom button, | Bouton Arrêt d'urgence | Tasto Di Arresto d'emergenza Completo |
| 51.11 | 403296 | Stern-Dreieck | Star-delta switch | Coupleur étoile-triangle | Avviatore a stella-triangolo |
| 63 | 301219 | Scheibe | Washer | Disque | Rondella |
| 64 | 300177 | Unterlagscheibe | Washer - steel | Disque d'acier | Rondella In Acciaio |
| 65 | 300240 | Sicherungsmutter | Lock nut | Contre-écrou | Dado autobloccante |

| Pos. Nr. | Art.-Nr. | Deutsch | English | Francais | Italiano |
|---|---|---|---|---|---|
| 66 | 300146 | Sechskantmutter | Hexagon nut | Ecrou hexagonal | Dado esagonale |
| 67 | 300392 | Sechskantschraube | Hexagonal screw | Vis hexagonal | Vite a testa esagonale |
| 68 | 300166 | Unterlagscheibe | Washer – steel | Disque d'acier | Rondella in acciaio |
| 69 | 300574 | Schnorrsicherung | Securing device | Dispositif d'arrêt | Fusibile Schnorr |
| 70 | 301166 | Sechskantschraube | Hexagonal screw | Vis hexagonal | Vite a testa esagonale |
| 71 | 300237 | Scheibe | Washer – steel | Disque d'acier | Rondella in acciaio |
| 72 | 300125 | Unterlagscheibe | Washer – steel | Disque d'acier | Rondella In Acciaio |
| 73 | 300356 | Sechskantschraube | Hexagonal screw | Vis hexagonal | Vite a testa esagonale |
| 74 | 300245 | Schnorrsicherung | Securing device | Dispositif d'arrêt | Fusibile Schnorr |
| 75 | 300470 | Flachrundschraube | Coach bolt | Boulon à tête bombée | Vite con testa a calotta piatta |
| 76 | 300834 | Sicherungsmutter | Lock nut | Contre-écrou | Dado autobloccante |
| 77 | 300323 | Sechskantschraube | Hexagonal screw | Vis hexagonal | Vite a testa esagonale |
| 78 | 300559 | Sicherungsmutter | Lock nut | Contre-écrou | Dado autobloccante |
| 79 | 300699 | Linsenkopf | Tallow-drop screw | Vis à tête goutte-de-suif | Vite a testa cilindrica |
| 80 | 203845 | Kugelgriff | Ball handle | Manivelle à boule | Manigla sferica |
| 81 | 300986 | Schlosschraube | Turnbuckle screw | Boulon à tête bombée | Vite a testa quadra |
| 82 | 300274 | Scheibe | Disc-steel | Disque d'acier | Rondella In Acciaio |
| 83 | 300179 | Unterlagscheibe | Washer – steel | Disque d'acier | Rondella in acciaio |
| 84 | 300835 | Sicherungsmutter | Lock nut | Contre-écrou | Dado autobloccante |
| 85 | 300496 | Sechskantschraube | Hexagonal screw | Vis hexagonal | Vite a testa esagonale |
| 86 | 300627 | Hutmutter | Cap nut | Ecrou borgne | Dado cieco |
| 87 | 300271 | Schnorrsicherung | Securing device | Dispositif d'arrêt | Fusibile Schnorr |
| 88 | 300472 | Linsenkopfschraube | Tallow-drop screw | Vis à tête goutte-de-suif | Vite a testa cilindrica |
| 89 | 300685 | Sechskantschraube | Hexagonal screw | Vis hexagonal | Vite a testa esagonale |
| 90 | 200495 | Rsgu | Pipe clamp | Collier pour tuyau | Staffa per tubi |
| 91 | 300370 | Inbusschraube | Inbus screw | Vis alene | Vite a esagnono cavo |
| 92 | 300319 | Unterlagscheibe | Washer – steel | Disque d'acier | Rondella In Acciaio |
| 93 | 300317 | Unterlagscheibe | Hexagon nut | Ecrou hexagonal | Dado esagonale |
| 94 | 300838 | Sechskantschraube | Hexagonal screw | Vis hexagonal | Vite a testa esagonale |
| 95 | 300437 | Sechskantschraube | Hexagonal screw | Vis hexagonal | Vite a testa esagonale |
| 96 | 300202 | Schnorrsicherung | Securing device | Dispositif d'arrêt | Fusibile Schnorr |
| 97 | 300371 | Innensechskantschraube | Cylindrical screw | Vis cylindrique | Vite a testa cilindrica |
| 98 | 203846 | Radkappe | Hub cap | Chapeau de moyeu | Coprimozzo |
| 99 | 300103 | Nutmutter | Groove nut | Ecrou cylindrique à gorges | Dado con intagli |

| Pos. Nr. | Art.-Nr. | Deutsch | English | Francais | Italiano |
|---|---|---|---|---|---|
| 100 | 200709 | Kugellager | Ball bearing | Roulement à billes | Cuscinetto a sfere |
| 101 | 300105 | Sicherungsring | Sealing ring | Circlip | Anello di fermo |
| 102 | 360077 | Gewindestift | Setscrew | Tige filetée | Spina filettata |
| 103 | 200720 | Rollenkette | Roller chain | Chaîne à rouleaux | Catena a rulli |
| 104 | 300019 | Passfeder | Key | Ressort d'ajustage | Linguetta di aggiustamento |
| 105 | 300547 | Gewindestift | Setscrew | Tige filetée | Spina filettata |
| 106 | 300267 | Schaftschraube | Set screw with slot and round end | Vis sans tête avec fente et bout sphérique | Vite senza testa con intaglio e calotta sferica |
| 107 | 300864 | Passfeder | Key | Ressort d'ajustage | Linguetta di aggiustamento |
| 108 | 380003 | Hutmutter | Cap nut | Ecrou borgne | Dado cieco |
| 109 | 201566 | Ritzel | Pinion gear | Pignon | Pignone |
| 110 | 264207 | Ritzel-Motor | Pinion – motor | Moteur pignon | Pignone, motore |
| 111 | 202889 | Getriebeentlüftung | gear venting | Ventilation de l'en | Ventilazione trasmissione |
| 112 | 200241 | Dichtring V-Seal | V-seal | Bague d'étanchétié joint en V | Anello di tenuta V-Seal |
| 113 | 204923 | Schutzring | Guard ring | Bague protectrice | Anello di protezione |
| 114 | 300048 | Sicherungsschraube | Safety screw | Vis de blocage | Vite di sicurezza |
| 115 | 690885 | Auslegerrohr kpl. | Boom tupe cplt. | Tube compl. | Tubo sporgente compl. |
| 116 | 690661 | Handkurbel | Crank handle | Manivelle | Manovella |
| 117 | 607513 | Tischverlängerung | Table extension | Rallongement de table | Prolunga tavolo |
| 118 | 622657 | Umlenkscheibe | Washer – steel | Disque d'acier | Rondella in acciaio |
| 119 | 607539 | Antriebsscheibe | Drive wheel | Poulie de commande | Puleggia di azionamento |
| 120 | 607540 | Kettenrad | Sprocket | Roue à chaîne | Rocchetto per catena |
| 121 | 607541 | Kettenrad | Sprocket | Roue à chaîne | Rocchetto per catena |
| 122 | 607538 | Antriebswelle | Drive shaft | Arbre de transmission | Albero motore |
| 123 | 607537 | Kurbelwelle | Crankshaft | Arbre – manivelle | Albero a gomiti |
| 124 | 607534 | Spannrollenhalter innen | Streching roller holder inside | Poulie de tension butée intérieur | Sostenitore rolli tensione interno |
| 125 | 607535 | Spannrollenhalter aussen | Streching roller holder outside | Poulie de tension butée extérieur | Sostenitore rolli tensione esterno |
| 126 | 607533 | Distanzbuchse | Spacer bush | Douille d'écartement | Distanziale a tubo |
| 127 | 607527 | Distanzbuchse | Spacer bush | Douille d'écartement | Distanziale a tubo |
| 128 | 206941 | Druckfeder | Compression spring | Ressort à pression | Molla a compressione |
| 129 | 607518 | Lagerabdeckung | Bearing cover | Couverture poulie | Copertura cuschinetto |
| 130 | 201535 | Bundbuchse | Flange sleeve | Douille à collet | Bussola flangiata |
| 131 | 611753 | Bronzebuchse | Bronze bush | Boite en bronze | Cespuglio di bronzo |

| Pos. Nr. | Art.-Nr. | Deutsch | English | Francais | Italiano |
|---|---|---|---|---|---|
| 132 | 262293 | Drahtseil_D=4mm | Wire rope | Câble métallique | Fune metallica |
| 133 | 203553 | Gleitstopfen | Sliding plug | Tampon coulissant | Tappo scorrevole |
| 134 | 280050 | Kugellager | Ball bearing | Roulement à billes | Cuscinetto a sfere |
| 135 | 300327 | Scheibe | Washer – steel | Disque d'acier | Rondella in acciaio |
| 136 | 607512 | Verstärkungswinckel | Reinforcing angle | Angle de renforcement | Vincolo rinforzante |
| 137 | 300046 | Sicherungsschraube | Safety screw | Vis de blocage | Vite di sicurezza |
| 138 | 300132 | Sicherungsschraube | Safety screw | Vis de blocage | Vite di sicurezza |
| 139 | 280026 | Kugellager | Ball bearing | Roulement à billes | Cuscinetto a sfere |
| 140 | 206227 | Rollenkette | Roller chain | Chaîne à rouleaux | Catena a rulli |
| 141 | 280034 | Kettensteckglied | Chain push-on link | Maille de chaîne | Ponte della catena |
| 142 | 203024 | Kegelgriff | Ball lever | Poignée conique | Manico conico |
| 143 | 280082 | Zylindergriff | Cylinder grip | Poignée cylindrique | Manopola cilindrica |
| 144 | 300806 | Sicherungsring | Sealing ring | Circlip | Anello di fermo |
| 145 | 300179 | Scheibe | Washer – steel | Disque d'acier | Rondella in acciaio |
| 146 | 300239 | Sechskantschraube | Hexagonal screw | Vis hexagonal | Vite a testa esagonale |
| 147 | 360151 | Sechskantschraube | Hexagonal screw | Vis hexagonal | Vite a testa esagonale |
| 148 | 300332 | Passcheibe | Shim ring | Rondelle | Rondella di spessore |
| 149 | 300333 | Passcheibe | Shim ring | Rondelle d'ajustage | Rasamento |
| 151 | 301252 | Spannstift | Dowel pin | Douille de serrage | Spina di serraggio |
| 152 | 300504 | Spannstift | Dowel pin | Douille de serrage | Spina di serraggio |
| 153 | 300306 | Passcheibe | Shim ring | Rondelle d'ajustage | Rasamento |
| 154 | 300385 | Flachrundschraube | Coach bolt | Boulon à tête bombée | Vite con testa a calotta piatta |
| 155 | 300576 | Scheibe | Washer - steel | Disque d'acier | Rondella in acciaio |
| 157 | 300003 | Ringschraube | Eyebolt | Anneau de levage | Vite ad anello |
| 158 | 607571 | Sicherungsriegel | Safety bolt | Boulon de sécurité | Bullone di sicurezza |
| 159 | 301393 | Schlossschraube | Carriage bolt | Boulon brut a tete bombee et col-let carre | Vite a testa quadra |
| 160 | 680294 | Loslager | Movable bearing | Palier libre | Supporto mobile |
| 160.1 | 607562 | Schraubbolzen lose | Stud | Boulon fileté | Prigioniero |
| 160.2 | 607561 | Führungsrolle | Guide roller | Galet de guidage | Rullo di guida |
| 160.3 | 206300 | Kugellager | Ball bearing | Roulement à billes | Cuscinetto a sfere |
| 160.4 | 300080 | Sechskantmutter | Hexagon nut | Ecrou hexagonal | Dado esagonale |
| 160.5 | 300166 | Unterlagscheibe | Washer – steel | Disque d'acier | Rondella in acciaio |
| 161 | 680295 | Festlager | Fixed bearing | Palier fixe | Cuscinetto bloccato |

| Pos. Nr. | Art.-Nr. | Deutsch | English | Francais | Italiano |
|---|---|---|---|---|---|
| 161.1 | 607563 | Schraubbolzen fest | Stud | Boulon fileté | Prigioniero |
| 161.2 | 607561 | Führungsrolle | Guide roller | Galet de guidage | Rullo di guida |
| 161.3 | 206300 | Kugellager | Ball bearing | Roulement à billes | Cuscinetto a sfere |
| 161.4 | 300080 | Sechskantmutter | Hexagon nut | Ecrou hexagonal | Dado esagonale |
| 161.5 | 300166 | Unterlagscheibe | Washer – steel | Disque d'acier | Rondella in acciaio |
| 161.6 | 607560 | Distanzbuchse | Spacer bush | Douille d'écartement | Distanziale a tubo |
| 162 | 690898 | Tisch geschweißt | Table | Table | Banco |
| 166 | 607536 | Seilhalterung | Rope carrier | Support de câble | Battuta destra |
| 167 | 607415 | Anschlag rechts | Stop right | Arrêt droite | Battuta destra |
| 168 | 607414 | Anschlag links | Stop left | Arrêt gauche | Battuta sinistra |
| 169 | 206142 | Drahtseilklemme 4mm | Wire rope clip | Serre-câble | Fermo fune metallica |
| 170 | 607574 | Handgriff | Hand grip | Poignée | Maniglia |
| 171 | 607572 | Tischsicherung rechts | Table safety lock right | Dispositif de sécurité de table droite | Fissaggio banco destra |
| 172 | 607573 | Tischsicherung links | Table safety lock left | Dispositif de sécurité de table gauche | Fissaggio banco sinistra |
| 173 | 300342 | Sechskantschraube | Hexagonal screw | Vis hexagonal | Vite a testa esagonale |
| 174 | 300942 | Flachrundschraube | truss-head screw | Boulon à tête bombée | Vite a testa bombata |
| 175 | 301358 | Flachrundschraube | Coach bolt | Boulon à tête bombée | Vite con testa a calotta piatta |
| 176 | 300276 | Sechskantschraube | Hexagonal screw | Vis hexagonal | Vite a testa esagonale |
| 177 | 607575 | Distanzscheibe | distance plate | Plaque de distance | Piastra distanziale |
| 178 | 208394 | Aufkleber | Adhesive plate | Vignette autocollante | Adesivo |
| 179 | 681140 | Anschlag | Stop | Arrêt | Battuta |
| 181 | 300384 | Senkschraube | Countersunk screw | Vis à tête conique | Vite a testa svasata |

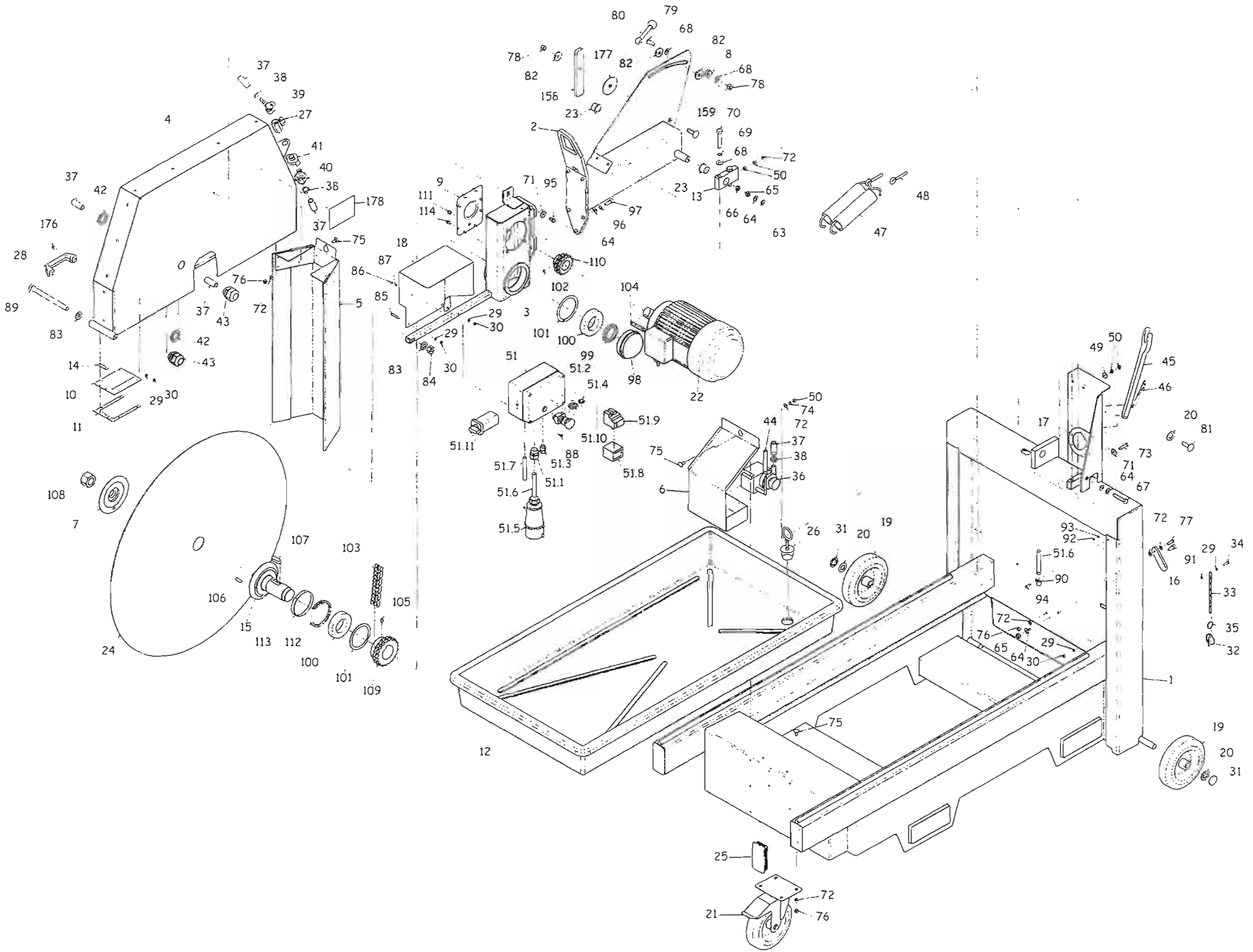
**Technische Änderungen vorbehalten!** **Subject to technical changes!** **Sous réserve de modifications techniques !** **Con riserva di modifiche tecniche!**

ACHTUNG!
Um Fehllieferungen zu vermeiden, sollten Sie bei Ersatzteil-Bestellungen die vollständige Typenbezeichnung, das Baujahr und die Maschinen-Nummer angeben!
Wir machen ausdrücklich darauf aufmerksam, daß nicht von uns gelieferte Teile auch nicht von uns geprüft und freigegeben sind. Der Einbau und die Verwendung solcher Produkte kann daher u.U. Eigenschaften Ihres Gerätes negativ verändern und dadurch die Sicherheit beeinträchtigen. Für Schäden, die durch die Verwendung von Nicht-Originalteilen und -zubehör entstehen, ist jegliche Haftung ausgeschlossen!

ATTENTION
To avoid incorrect deliveries, when ordering replacement parts you should specify the complete type description, the build year and the machine number!
We would like to make it absolutely clear that parts not supplied by us are also not tested and approved by us. The installation and use of such products can therefore, under certain circumstances, negatively change the characteristics of the machine and thereby impair safety. Any warranty or liability for damages caused by use of non-original parts and accessories is excluded!

ATTENTION
Afin d'éviter des erreurs de livraison, il convient lors de la commande de pièces de rechange d'indiquer le numéro de série, l'année de construction et le numéro de la machine !
Nous tenons à porter expressément votre attention sur le fait que les pièces qui ne sont pas livrées par notre entreprise n'ont pas été contrôlées ni validées par nos soins. Le montage et l'utilisation de telles pièces peut le cas échéant avoir une influence négative sur les propriétés de votre appareil et menacer la sécurité. Nous déclinons toute responsabilité en cas de dommages résultant de l'utilisation de pièces et d'accessoires n'étant pas d'origine !

ATTENZIONE
Per evitare forniture errate, indicare la denominazione completa, l'anno di costruzione e il numero di matricola della macchina negli ordini di ricambi!
Si fa esplicitamente presente che le parti non fornite da noi non sono nemmeno controllate e approvate dalla nostra azienda. Il montaggio e l'uso di tali prodotti può pertanto modificare negativamente l'apparecchio in determinate condizioni e comprometterne la sicurezza. Decliniamo ogni responsabilità per i danni causati dall'uso di parti e accessori non originali!



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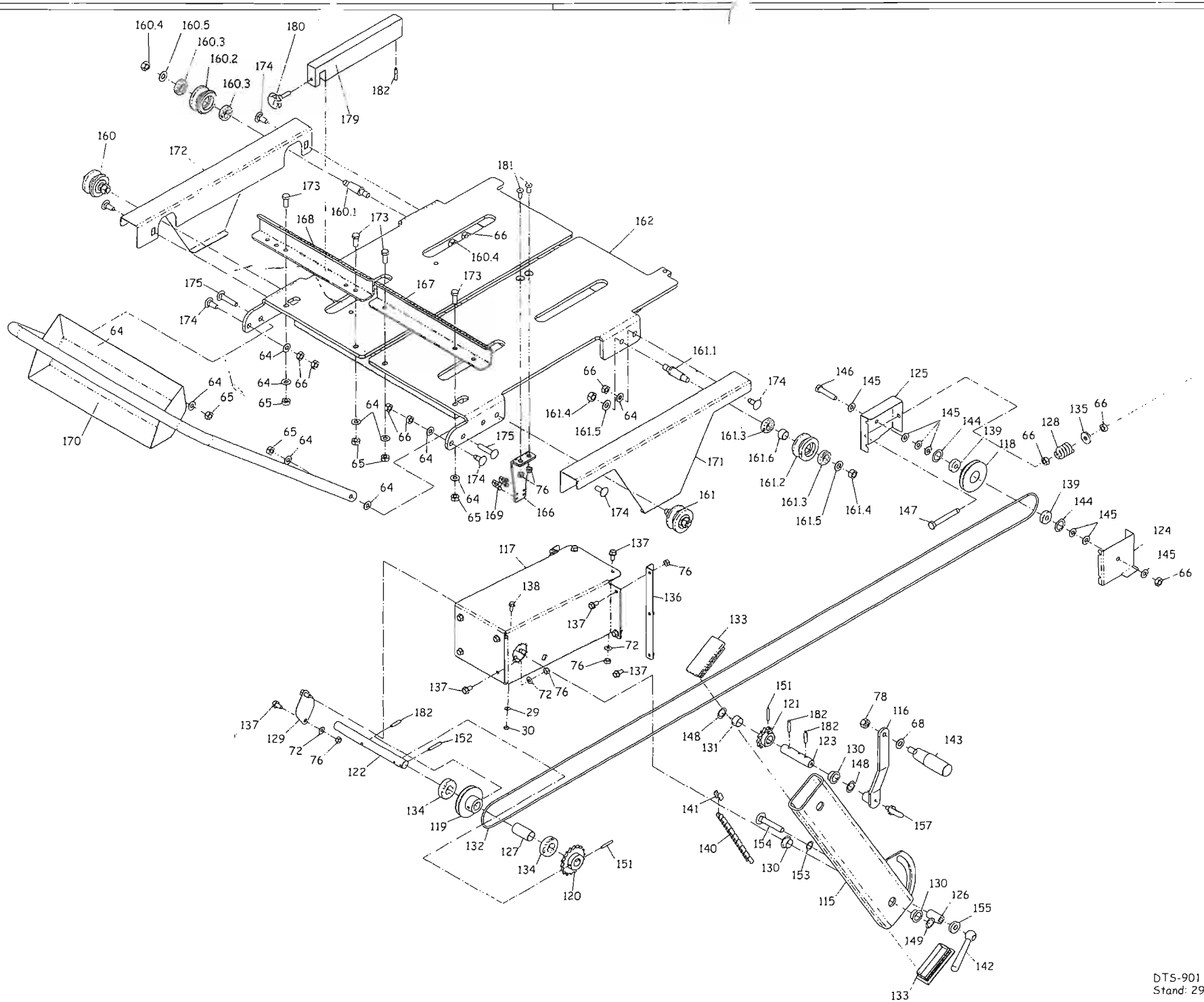
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